



AMENDMENTS TO THE CLAIMS

The following listing of the claims replaces all prior versions and listings of the claims in relation to the present patent application.

Listing of the Claims

1. (currently amended): An A portable induction heating system, comprising in a portable unit:

a portable power source electrically coupleable to a fluid-cooled induction heating cable and operable to convert incoming power to controlled, variable frequency output power to produce a varying magnetic field;

a portable, programmable power source controller coupled to the portable power source for regulating the power conversion; and

a portable cooling unit fluidically coupleable directly to the fluid-cooled induction heating cable for circulating a cooling fluid through the cable and around a workpiece to cool the fluid-cooled induction heating cable.

2. (previously presented): The system as recited in claim 1, comprising a flexible fluid-cooled induction heating cable.

3. (currently amended): The system as recited in claim 1, wherein the fluid-cooled induction heating cable is coupled via connector assemblies to the portable power source and portable cooling unit.

4. (currently amended): The system as recited in claim 3, wherein the power source controller is operable to control power from the power source to produce a desired temperature profile in the workpiece.

5. (original): The system as recited in claim 2, wherein the induction heating system is operable to preheat a workpiece before welding and to relieve stress from the workpiece after welding.

6. (original): The system as recited in claim 1, comprising a wheeled cart, wherein the power source and cooling unit are disposed on the wheeled cart.

7. (canceled)

8. (original): The system as recited in claim 1, comprising a temperature feedback device operable to provide an electrical signal representative of workpiece temperature.

9.-46. (cancelled)

47. (currently amended): A portable heating system, comprising in a portable unit:

a power source operable to convert incoming power to controlled, variable frequency output power and to apply the output power to heat a workpiece;

a power source controller operable to control the heating of a workpiece in response to programming instructions provided by a user to produce a desired temperature profile in the workpiece; and

a cart operable to transport the power source and power source controller to the workpiece.

48. (original): The system as recited in claim 47, wherein the system is an induction heating system.

49. (original): The system as recited in claim 47, comprising a fluid-cooled induction heating cable.

50. (original): The system as recited in claim 47, comprising a cooling unit operable to provide a flow of cooling fluid, the cooling unit being disposed on the cart.

51. (original): The system as recited in claim 47, comprising a temperature feedback device operable to produce a signal representative of workpiece temperature to the power source controller.

52. (original): The system as recited in claim 47, wherein the power source controller uses PID control.

53. (original): The system as recited in claim 47, wherein the power source controller uses PI control.

54. (original): The system as recited in claim 47, wherein the system is operable to raise the temperature of a workpiece to a first temperature and lower the temperature of the workpiece from the first temperature to a second temperature at a desired rate.

55. (original): The system as recited in claim 47, comprising an insulation blanket having a visible line to enable the insulation blanket to be aligned with a weld joint.

56. (cancelled)

57. (currently amended): An-A portable induction heating system, comprising in a portable unit:

a portable-power source electrically coupleable to a portable fluid-cooled induction heating cable and operable to convert incoming power to controlled, variable frequency output power to produce a varying magnetic field;

a portable-programmable controller operable to control induction heating; and

a portable-cooling unit fluidically connected to the portable-fluid-cooled induction heating cable to cool the fluid-cooled induction heating cable.

58. (currently amended): The system as recited in claim 57, wherein the portable-programmable controller comprises a plurality of visual indicators.

59. (currently amended): The system as recited in claim 57, wherein the fluid-cooled induction heating cable is connected via connector assemblies to the portable-power source and portable-cooling unit.

60. (currently amended): The system as recited in claim 57, wherein the portable-programmable controller is operable to control induction heating to produce a desired temperature profile in a workpiece.

61. (previously presented): The system as recited in claim 57, wherein the induction heating system is operable to preheat a workpiece before welding and to relieve stress from the workpiece after welding.

62. (previously presented): The system as recited in claim 57, comprising a wheeled cart, wherein the power source and cooling unit are disposed on the wheeled cart.

63. (canceled):

64. (previously presented): The system as recited in claim 57, comprising a temperature feedback device operable to provide an electrical signal representative of a workpiece temperature.

65. (previously presented): The system, as recited in claim 64, wherein the electrical signal representative of the workpiece temperature from the temperature feedback device is sent to the programmable controller.

66. (previously presented): The system as recited in claim 57, wherein the programmable controller uses proportional-integral-derivative (PID) control.

67. (previously presented): The system as recited in claim 57, wherein the programmable controller uses proportional-integral (PI) control.

68. (currently amended): A portable induction heating system, comprising in a portable unit:

a power source operable and operable to convert incoming power to controlled, variable frequency output power and to apply power the output to inductively heat a workpiece;

a temperature controller operable to control the induction heating of the workpiece in response to programming instructions provided by a user to produce a desired temperature profile in the workpiece; and

a cart operable to transport the power source and temperature controller to the workpiece.

69. (previously presented): The system as recited in claim 68, wherein the temperature profile is configured for post-weld stress relief of the workpiece.

70. (previously presented): The system as recited in claim 68, comprising a fluid-cooled induction heating cable.

71. (previously presented): The system as recited in claim 68, comprising a cooling unit operable to provide a flow of cooling fluid, the cooling unit being disposed on the cart.

72. (previously presented): The system as recited in claim, 68 comprising a temperature feedback device operable to produce a signal representative of workpiece temperature to the temperature controller.

73. (previously presented): The system as recited in claim 68, wherein the temperature controller uses proportional-integral-derivative (PID) control.

74. (previously presented): The system as recited in claim 68, wherein the temperature controller uses proportional-integral (PI) control.

75. (previously presented): The system as recited in claim 68, wherein the system is operable to raise the temperature of a workpiece to a first temperature and lower the temperature of the workpiece from the first temperature to a second temperature at a desired rate.

76. (previously presented): The system as recited in claim 68, comprising an insulation blanket having a visible line to enable the insulation blanket to be aligned with a weld joint.

77. (currently amended): The system as recited in claim 70, wherein the fluid-cooled induction heating cable is connected via connector assemblies to the ~~portable~~-power source.

78. (currently amended): The system as recited in claim 71, wherein a fluid-cooled induction heating cable is connected via connector assemblies to the ~~portable~~-cooling unit.

79. (currently amended): An induction heating system, comprising:
a portable power source electrically coupleable to a fluid-cooled induction heating cable and operable to convert incoming power to controlled, variable frequency output power to produce a varying magnetic field;
a portable programmable power source controller coupled to the portable power source for regulating the power conversion; and
a portable cooling unit fluidically connected to the fluid-cooled induction heating cable to cool the fluid-cooled induction heating cable.

80. (previously presented): The system as recited in claim 79, comprising a flexible fluid-cooled induction heating cable.

81. (previously presented): The system as recited in claim 79, wherein the fluid-cooled induction heating cable is coupled via connector assemblies to the portable power source and portable cooling unit.

82. (previously presented): The system as recited in claim 79, wherein the portable programmable power source controller is operable to control power from the power source to produce a desired temperature profile in the workpiece.

83. (previously presented): The system as recited in claim 79, wherein the induction heating system is operable to preheat a workpiece before welding and relieve stress from the workpiece after welding.

84. (previously presented): The system as recited in claim 79, comprising a wheeled cart, wherein the power source and cooling unit are disposed on the wheeled cart.

85. (previously presented): The system as recited in claim 79, wherein a portable power source controller is disposed on the wheeled cart.

86. (previously presented): The system as recited in claim 79, comprising a temperature feedback device operable to provide an electrical signal representative of workpiece temperature.

87. (currently amended): A portable heating system, comprising in a portable unit:

a power source operable to convert incoming power to controlled, variable frequency output power and to apply power to heat a workpiece;

a controller operable to control the heating of the workpiece in response to programming instructions for producing a desired temperature profile in the workpiece; and

a cart operable to transport the power source and controller to the workpiece.

88. (previously presented): The system as recited in claim 87, wherein the system is an induction heating system.

89. (previously presented): The system as recited in claim 87, comprising a fluid-cooled induction heating cable.

90. (previously presented): The system as recited in claim 87, comprising a cooling unit operable to provide a flow of cooling fluid, the cooling unit being disposed on the cart.

91. (previously presented): The system as recited in claim 87, comprising a temperature feedback device operable to produce a signal representative of workpiece temperature to the controller.

92. (previously presented): The system as recited in claim 87, wherein the controller uses proportional-integral-derivative (PID): control.

93. (previously presented): The system as recited in claim 87, wherein the controller uses proportional-integral (PI): control.

94. (previously presented): The system as recited in claim 87, wherein the controller is operable to raise the temperature of a workpiece to a first temperature and lower the temperature of the workpiece from the first temperature to a second temperature at a desired rate.